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LEWISTOWN TOPICS

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Prepared For

MONTANA DEPARTMENT OF HIGHWAYS
PLANNING RESEARCH BUREAU

By

MORRISON-MAIERLE, INC.
Consulting Engineers
Helena, Montana

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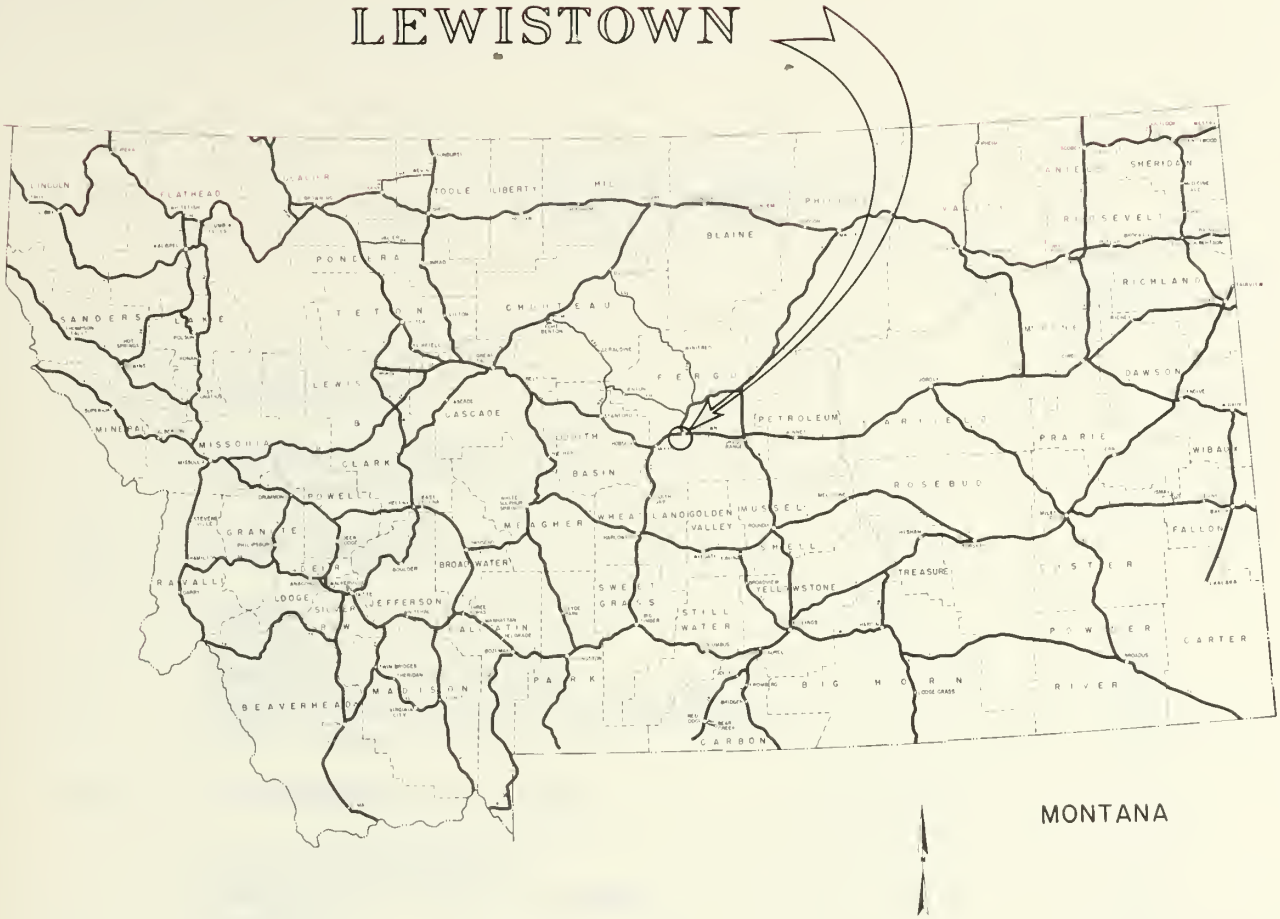

A TRAFFIC OPERATIONS IMPROVEMENT PLAN FOR THE LEWISTOWN URBAN AREA

prepared for

Montana Department of Highways - Planning and Research Bureau
in cooperation with
U.S. Department of Transportation - Federal Highway Admininstration

by

Morrison-Maierle Inc. Consulting Engineers
Helena, Montana

January, 1974

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I

INTRODUCTION

THE TOPICS PROGRAM:

This study report is the result of an area wide Traffic Operations Program to Increase Capacity and Safety (TOPICS) on the existing street and road network within the Lewistown Urbanized area. Program authority was established by the Congress as part of the Federal Aid Highway Act of 1968 and the guidelines for implementation are outlined in the Federal Highway Administration's Policy and Procedure Memorandum 21-18 dated May 13, 1971.

The program is designed to provide a continuing program within designated urban area boundaries which will develop optimum efficiency from the existing street and road network. The intent of TOPICS is not for major construction, but rather, to provide a systematic means for eliminating existing deficiencies with a minimum of capital outlay. The program is intended to compliment long range improvement proposals and as such must be coordinated with local, state and federal transportation authorities.

The TOPICS program encourages planning for traffic operational improvement projects on the following road systems within the urbanized area:

1. Federal Aid Primary Type I.
2. Federal Aid Secondary.
3. Federal Aid Primary Type II.
    a. These are streets which are not included in either of the first two categories nor are they on the Federal Aid Urban System.

The following general types of improvements may be eligible for TOPICS planning:

1. Traffic control devices and approach lanes.
2. Widening or altering traffic lanes including:
    a. Addition of turning lanes;
    b. Widening created by channelization;
    c. Widening to eliminate bottlenecks.
3. Upgrading traffic control signs.
4. Restricting curb parking.
5. Short construction or reconstruction of streets for route continuity.

The foregoing list is not intended to be complete but should serve to indicate the type of projects intended to be included for traffic operational improvements by the Federal Act. Local officials played an important role in the development of this report.

THE COMMUNITY:

Lewistown is the County Seat of Fergus County. It is located in central Montana. The 1970 Census showed that the City contained 6,437 people. Table 1 shows past population trends for the City and for Fergus County. The projections were furnished by the Montana Department of Intergovernmental Relations, Planning and Economic Development Section. They are based on past demographic trends.

There are two high schools in Lewistown - Fergus County High School and St. Leo's High School, along with six elementary schools.

POPULATION TRENDS AND PROJECTIONS

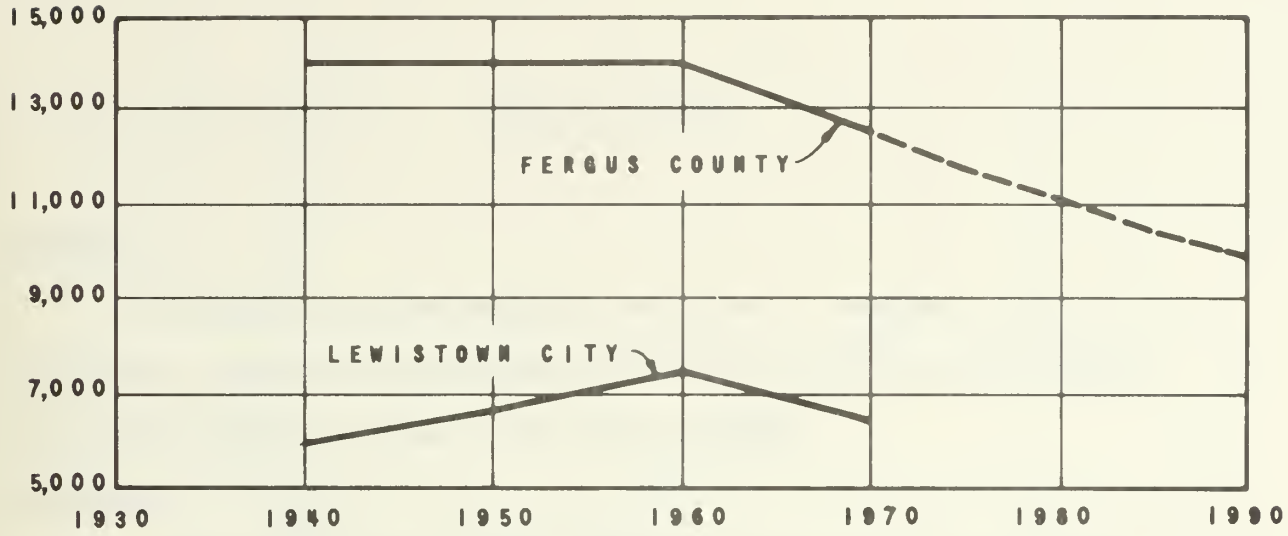


Table I

The major industries in the Lewistown area are farming and ranching, and this City is the regional center that supplies many of their needs. Agriculture, therefore, has the largest single effect on the Lewistown economy.

One traffic generator to the south is the gypsum plant which is a major employer. Also, the completion of the flood control project will permit the development of major recreational facilities and summer home areas, both of which would increase traffic from this direction.

Gold mining is a minor industry in the Lewistown area, as is brick manufacturing and timber cutting and processing. Tourism and recreation also contribute to the economy to a small extent and these industries are expected to grow in the future.

II

STUDY PROCEDURE

GENERAL:

The study procedure basically consisted of inventory, analysis and evaluation, project identification and solutions to correctable problems which fall within the scope of the TOPICS program.

INVENTORY:

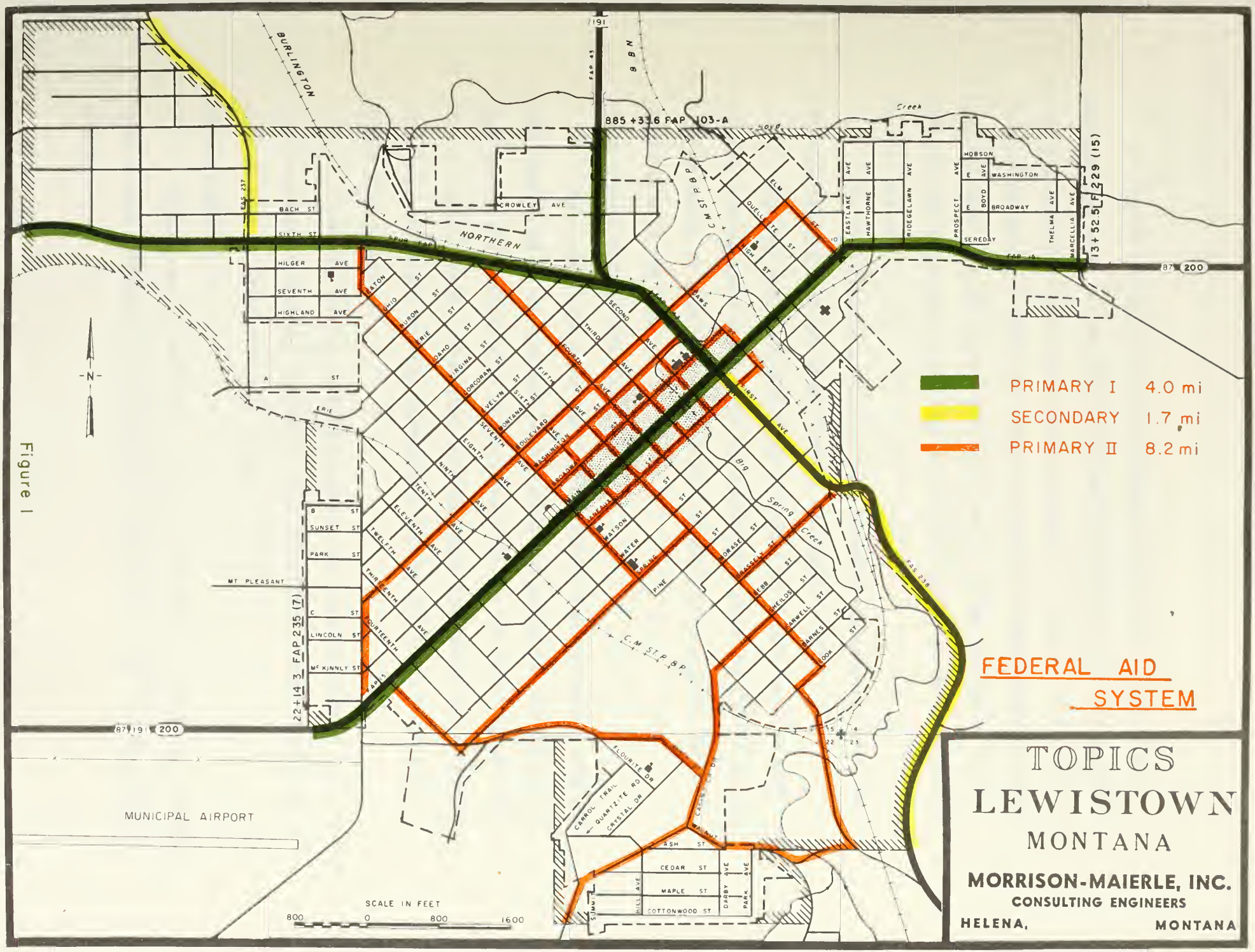
Existing data such as the Lewistown Comprehensive Plan, current traffic counts and street and road projects which are being planned or are underway were examined to determine what parts of these items could be used for the current study. The purpose of this was to eliminate duplication of effort.

Meetings were held with local officials to aquaint them with the TOPICS program and to obtain data such as accident records, traffic ordinances and any other data which would be available at the local level.

In addition to existing inventory data, machine traffic counts were taken at many locations, turning movement counts were made, accident data was compiled and a sign inventory was taken. Also, physical characteristics of some of the suspected problem areas were obtained and parking at suspected problem locations was examined.

ANALYSIS AND EVALUATION:

Early in the study process, the Tentative Federal Aid Primary Type II system (Figure 1) was developed as outlined in the Federal Highway Administration's Policy and Procedures Memorandum. The Type II system was approved by City Council action. The documentation is included in the appendix.


PRIMARY I 4.0 mi
SECONDARY 1.7 mi
PRIMARY II 8.2 mi
FEDERAL AID SYSTEM
TOPICS
LEWISTOWN
MONTANA
MORRISON-MAIERLE, INC.
CONSULTING ENGINEERS
HELENA, MONTANA
SCALE IN FEET
800 0 800 1600
MUNICIPAL AIRPORT
NORTHERN
BURLINGTON
C M ST P & P
885 +33.6 FAP 103-A
22+14.3 FAP 235 (7)
13+52.5 FAP 229 (15)
Big Spring Creek
Figure 1

Traffic volumes and turning movement counts were compiled and analyzed and Level of Service factors were computed at selected locations. Accident concentrations were plotted and where the need was indicated, intersections were evaluated for signal warrants and other needed corrective measures such as signing, striping and channelization measures. Signal warrants and signs are as outlined in the 1971 Manual on Uniform Traffic Control Devices.

The City traffic ordinances were reviewed and compared with the "Uniform Vehicle Code and Model Traffic Ordinance", 1968.

Meetings were held with City officials to obtain local opinion concerning problem areas which might be correctable under the TOPICS program. A field review of each site as well as a general review of the TOPICS street network was made.

PROJECT IDENTIFCATION AND SOLUTIONS:

The sites which would qualify for TOPICS type corrective measures were identified by the process of analyzing and evaluating the inventory data and by discussions with local authorities who are familiar with the City's traffic needs. Alternate solutions were considered and discussed with local officials and the recommended actions are shown in Section IV, TOPICS Improvements.

A priority list of the improvements was prepared showing the relative importance as indicated by Lewistown City officials. A preliminary estimate of cost is shown with each proposed project.

SURVEILLANCE:

Recommended surveillance procedures designed to measure the effectiveness of each improvement are described following the "TOPICS Improvements" Section.

III

THE TRANSPORTATION SYSTEM

EXISTING FACILITIES:

The major highways that serve Lewistown are U.S. 87 (FAP 15) and U.S. 191 (FAP 43). U.S. 87 connects Lewistown with Great Falls to the west and Billings to the southeast. A U.S. 87 bypass on the north side of Lewistown helps keep some of the through traffic off Main Street. U.S. 191 is a north-south route which connects Lewistown with Bozeman and southwestern Montana and with U.S. 2 (the Highline) to the north.

The minor highways serving Lewistown are FAS 237 and FAS 238. FAS 237 gives access to Hanover and the rural area to the north. FAS 238 serves to connect Lewistown and the rural area to the south near the town of Heath.

The other transportation facilities serving Lewistown are buses, railroads, and airlines. The railroad lines through Lewistown are the Burlington Northern and the Chicago, Milwaukee, St. Paul and Pacific. No passenger service is provided as Lewistown is not on the Amtrak System, but rail freight service is provided. Frontier Air Lines serves Lewistown at the Fergus County Airport with passenger and air freight service. There is one flight east and one west each day.

AVERAGE DAILY TRAFFIC VOLUMES (ADT):

The city of Lewistown is a low density population area and the Central Business District (CBD) is the only major traffic generator. This results in relatively low traffic volumes on most of the study area streets during off peak periods. Minor traffic congestion occurs at some intersections during peak traffic periods as evidenced by the traffic signal warrants

which were met at four locations. One is recommended for improvements under the TOPICS program and three are covered under the 9999's program as being completed by the Montana Department of Highways.

Traffic counts were taken in the spring and summer of 1973 and adjusted to give an annual average daily traffic. Most are 24 hour counts during the middle of the week, although some cover periods of up to five days. These counts show total traffic on the street and are not directional.

The traffic volumes (ADT) are shown in Figures 2 and 3. Those in the CBD are shown separately to a different scale. The numbers on the map show the location of the counts.

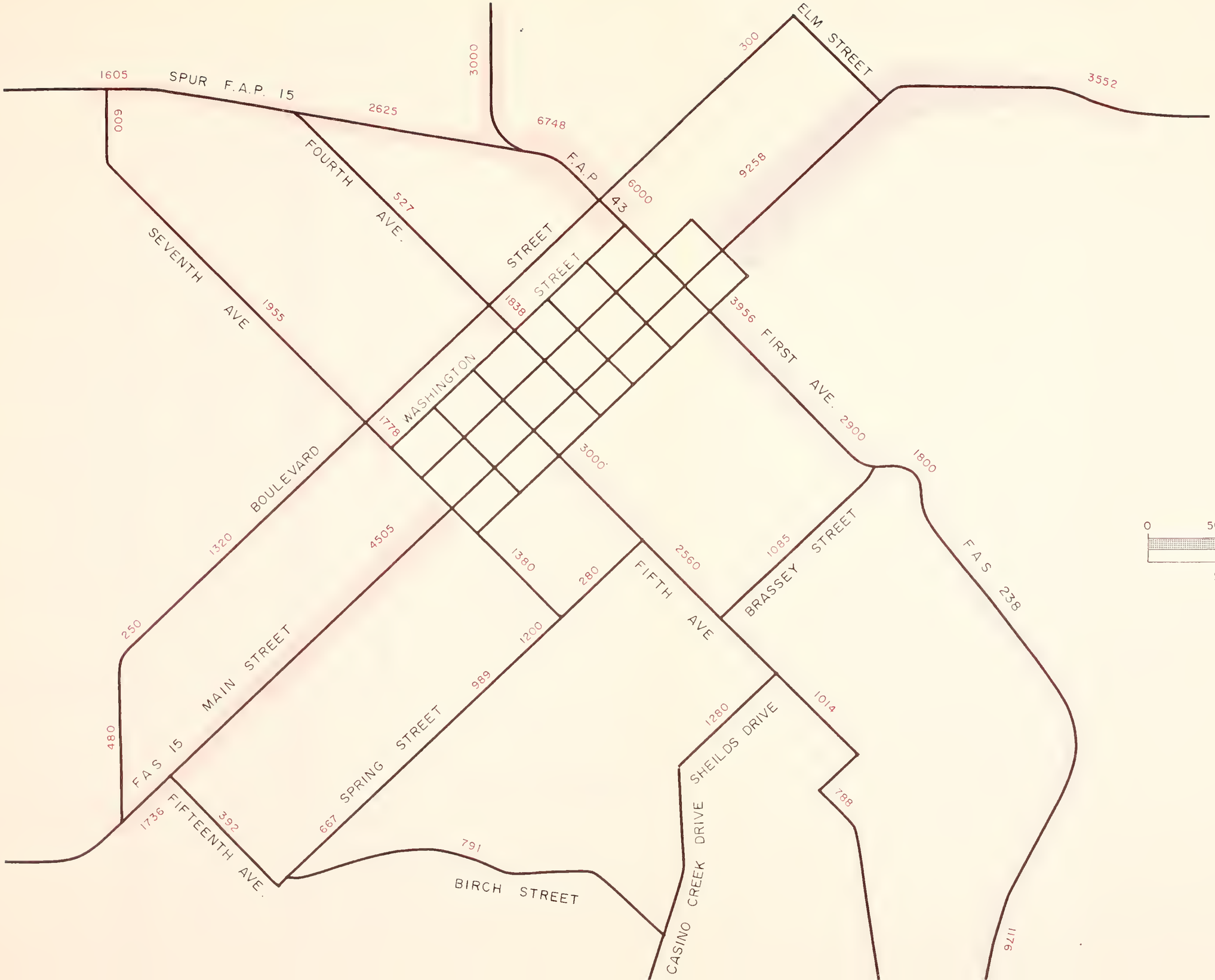
CAPACITY:

Street capacity was calculated for the approaches to intersections in the CBD in Lewistown for Level of Service C (the design capacity). A demand volume to service volume ratio was then calculated. The highest ratio found, .74, was on the southbound approach on First Avenue at Main Street. These are shown in Table 2.

DIRECTIONAL AND TURNING VOLUMES:

Figures 4 and 5 show the approach turning and departing volumes at peak hours for the intersections on Main Street from First Avenue to Seventh Avenue. These were hand counts. On Main Street and Second, and on Fifth and Sixth Streets, they were taken in August of 1973. The other turning movement counts were taken by Montana Department of Highways prior to this study.

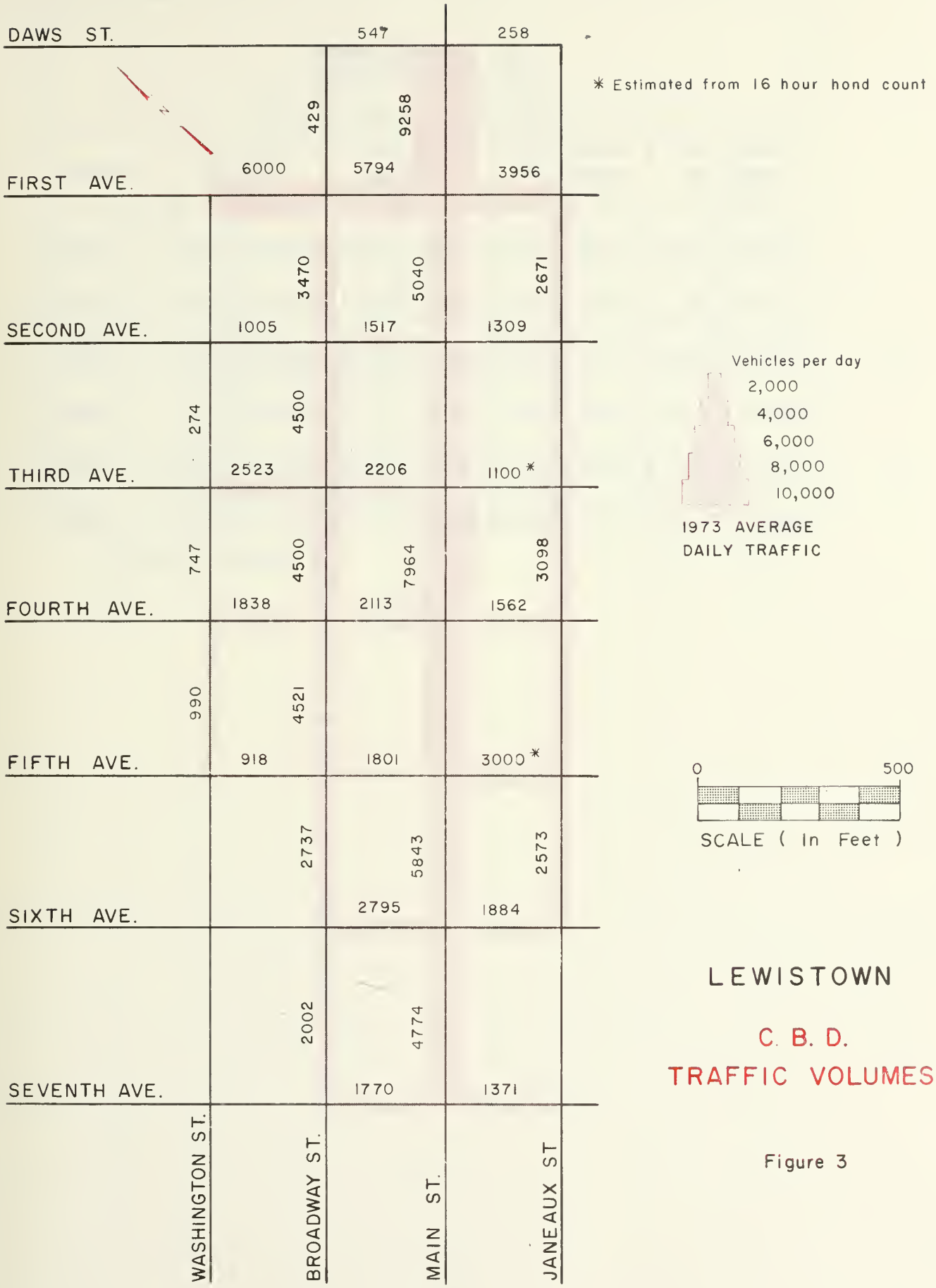
The departing volume of one intersection does not always match the approach volume of the next block. This is a result of using each intersection's peak hour and the different years the counts were taken, but they do show a good pattern of traffic movement.



LEWISTOWN

TRAFFIC VOLUMES

Figure 2



LEWISTOWN

C. B. D.
TRAFFIC VOLUMES

Figure 3

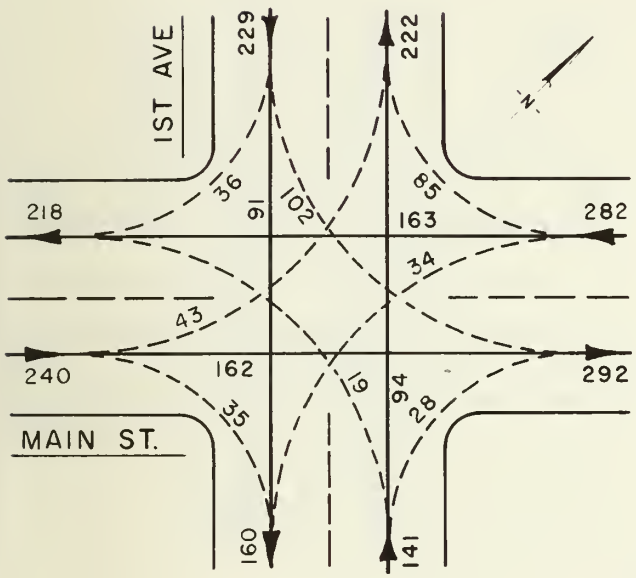
Demand Volume / Service Volume ($\frac{DV}{SVc}$)* For Lewistown Intersections				
Avenue	West Bound On Main At	East Bound On Main At	North Bound On Avenue At Main	South Bound On Avenue At Main
First	.37 4:45-5:45 pm	.42 4:45-5:45 pm	.36 4:45-5:45 pm	.73 4:45-5:45 pm
Second	.42 8:30-9:30 pm	.38 8:30-9:30 pm	.33 1:00-2:00 pm	.23 1:00-2:00 pm
Third	.39 4:00-5:00 pm	.32 4:00-5:00 pm	.42 4:00-5:00 pm	.26 4:00-5:00 pm
Fourth	.47 3:30-4:30 pm	.50 3:30-4:30 pm	.56 3:30-4:30 pm	.40 3:30-4:30 pm
Fifth	.40 8:45-9:45 pm	.29 8:45-9:45 pm	.37 8:45-9:45 pm	.24 8:45-9:45 pm
Sixth	.24 8:15-9:15 pm	.21 8:15-9:15 pm	.40 8:15-9:15 pm	.31 8:15-9:15 pm

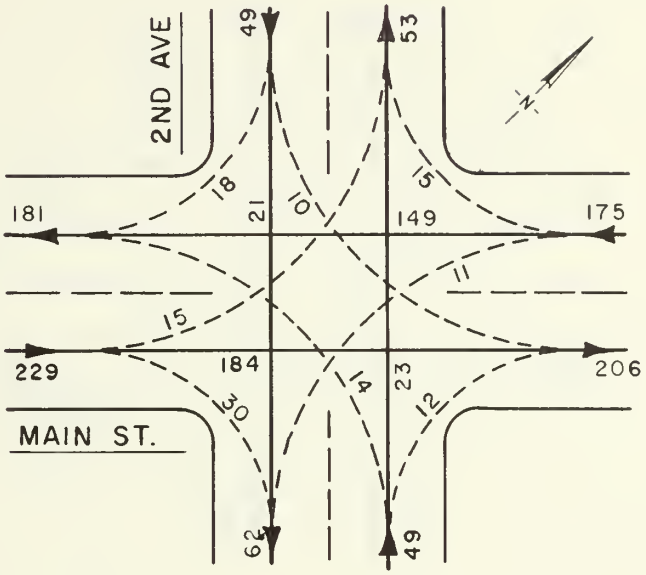
* Level of Service C

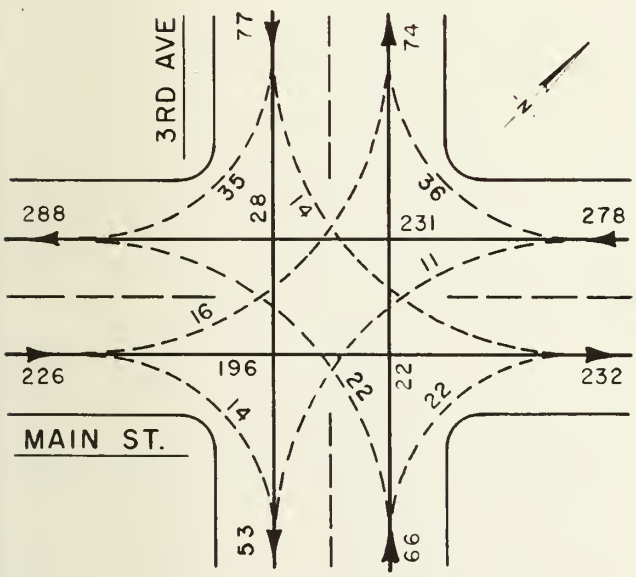
TABLE 2

TRAFFIC VOLUMES & TURNING MOVEMENTS

4:45 P.M. TO 5:45 P.M.







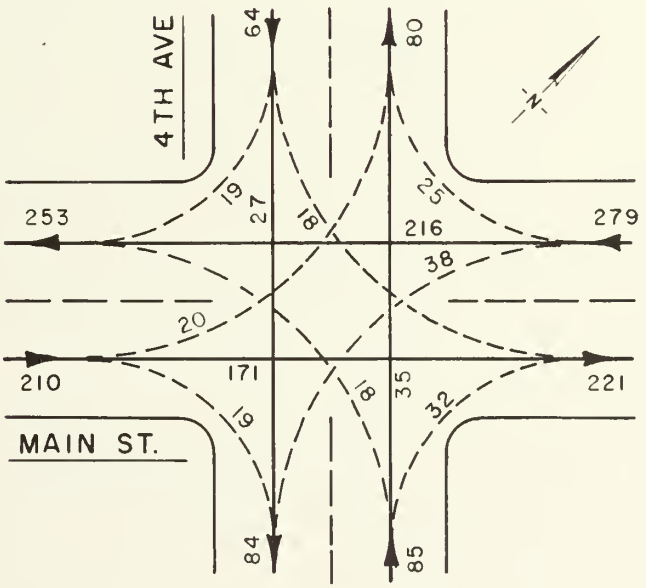
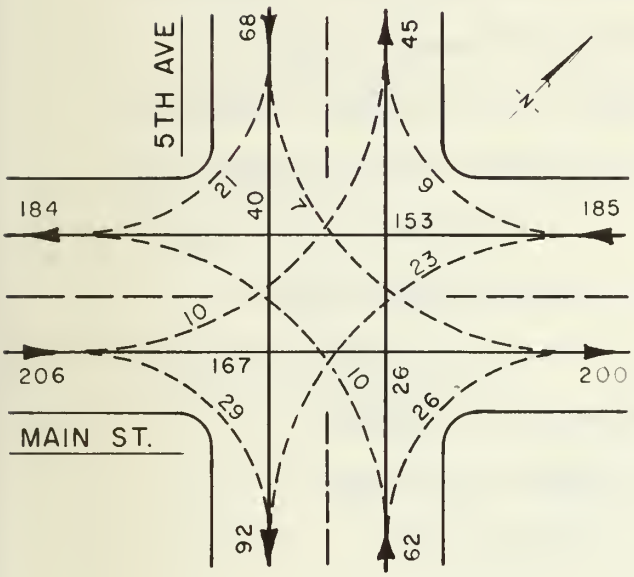


Figure 4

TRAFFIC VOLUMES & TURNING MOVEMENTS

4:45 P.M. TO 5:45 P.M.



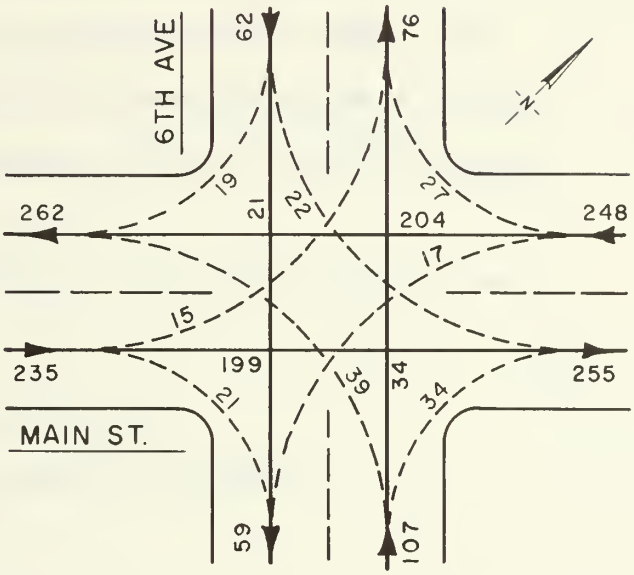


Figure 5

TRAFFIC SIGNALS:

Lewistown has 7 traffic signal installations at present. Only 5 of these are in use. The two inoperative installations are covered.

Figure 6 shows the location of the signals and their status. Warrants were checked on all of these locations and where the warrants were not met, removal of the installation is recommended. These locations are shown in the list of projects.

When warrants are met, a signal installation usually improves the following conditions:

1. Provides for orderly movement of traffic.
2. Reduces the number of certain types of accidents.
   a. Right angle,
   b. Pedestrian,
   c. Turning movements.
3. Provides a means of interrupting heavy traffic to allow other traffic, both vehicular and pedestrian to enter or cross.
4. Promotes driver confidence by establishing positive right-of-way.

Traffic signals at unwarranted locations usually restrict the smooth flow of traffic for the following reasons:

1. Increases total intersection delay, especially at off peak hours.
2. Increases rear-end accidents.
3. Promotes disrespect for signals that are needed.
4. Increases driver irritation.

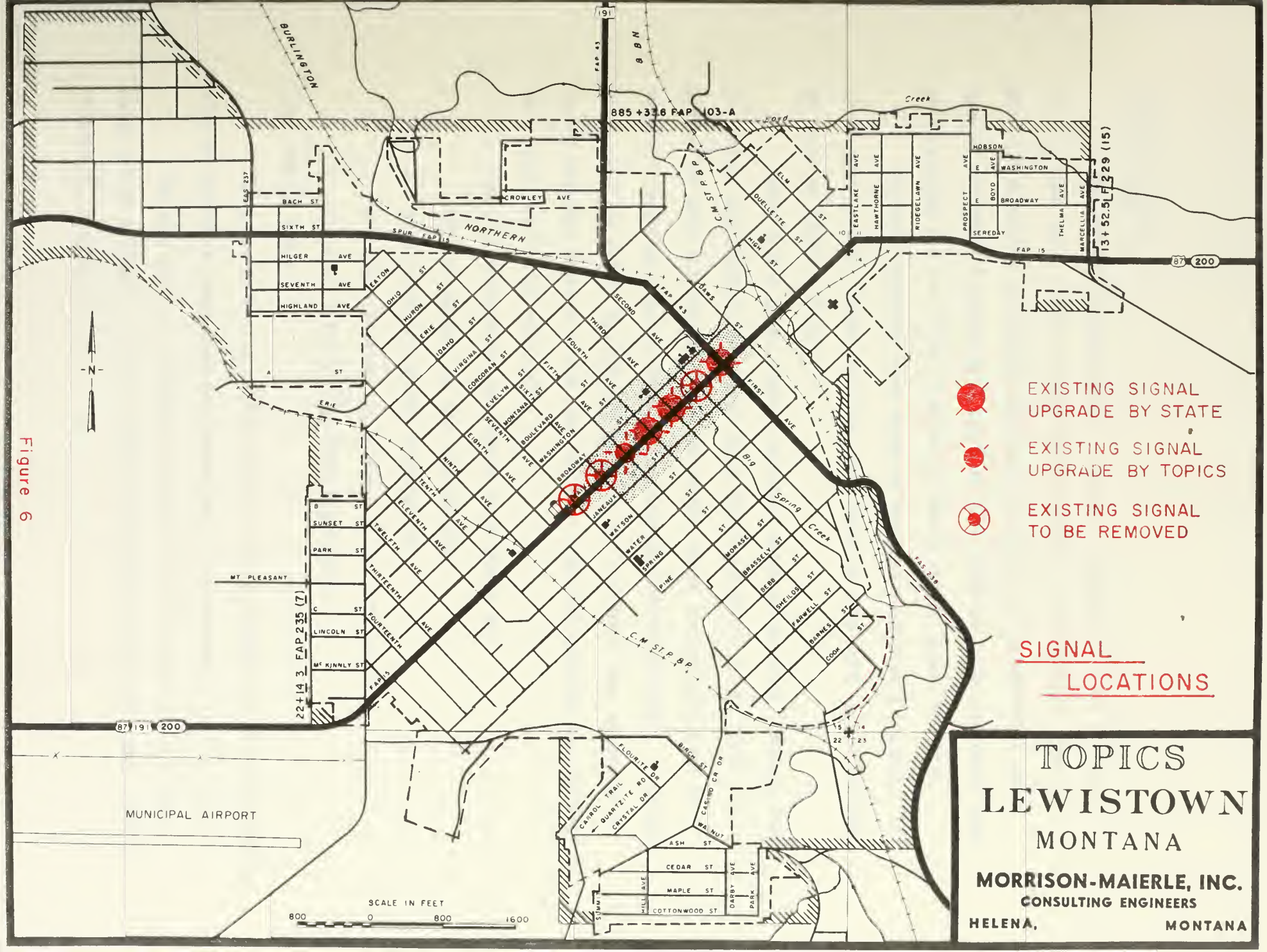

EXISTING SIGNAL
UPGRADE BY STATE
EXISTING SIGNAL
UPGRADE BY TOPICS
EXISTING SIGNAL
TO BE REMOVED
SIGNAL
LOCATIONS
TOPICS
LEWISTOWN
MONTANA
MORRISON-MAIERLE, INC.
CONSULTING ENGINEERS
HELENA, MONTANA
885 +33.6 FAP 103-A
13+52.5 FAP 229 (15)
22+14.3 FAP 235 (7)
MUNICIPAL AIRPORT
SCALE IN FEET
800 0 800 1600
NORTHERN
BURLINGTON
C M ST P & P
Big Spring Creek
Ford Creek
CROWLEY AVE
SIXTH ST
HILGER AVE
SEVENTH AVE
HIGHLAND AVE
MT PLEASANT
SUNSET ST
PARK ST
LINCOLN ST
Mc KINNLY ST
ERIE
MONTANA
BOULEVARD
WASHINGTON
BROADWAY
JANEAU
WATSON
WATER
SPRING
PINE
MORASE
BRASSELY
GEBB
SHEILDS
FARWELL
BARNES
COOK
ELM
OUELLETTE
ALICE
HOBSON
WASHINGTON
BOYD
BROADWAY
SEREDAY
EASTLAKE
HAWTHORNE
RIDGEGLAWN
PROSPECT
THELMA
MARCELLIA
FLOURITE DR
CAROL TRAIL
QUARTZITE RD
CRYSTAL DR
CASTLE CR DR
WALNUT
ASH ST
CEDAR ST
MAPLE ST
COTTONWOOD ST
BIRCH ST
SUMMIT
HILL AVE
DARBY AVE
PARK
FAS 237
FAS 238
FAP 15
FAP 43
87 191 200
87 200

Figure 6

ACCIDENT SURVEY:

The accident record survey covered a three year period from June 1970 to June 1973. The accidents were recorded as to location, type and date, to determine the highest accident locations and to determine which type of accidents occurred most often at each location. The accidents that were recorded had over $100 in property damage and/or injury or death.

Fourteen locations were found to have had more than 8 accidents in the 3 year period. Three locations were found to have more than 5 accidents per year as shown in Figure 7.

Table 3 is a chart showing accident rates at selected intersections. Two values are plotted; the first shows total accidents in the three year period for each intersection, and the second shows the accident rate in number of vehicles passing through the intersection per accident. Intersections with low rates, eg. 200,000 vehicles per accident, were suspected of having problems whereas a high rate such as 1,300,000 vehicles per accident were considered relatively safe.

These investigations considered such things as:

1. Type of control on the intersection.
2. Sight distance at the intersection.
3. How close parking was allowed to the intersection.
4. Capacity calculations where applicable.

CITY TRAFFIC CODES:

The purpose of city traffic codes is to facilitate the safe and orderly flow of traffic without imposing unnecessary or unreasonable restrictions.

The city codes of Lewistown are well set up to do this and in most cases are in agreement with the 1968 "Uniform Vehicle Code and Model Traffic Ordinances" and Montana Law.

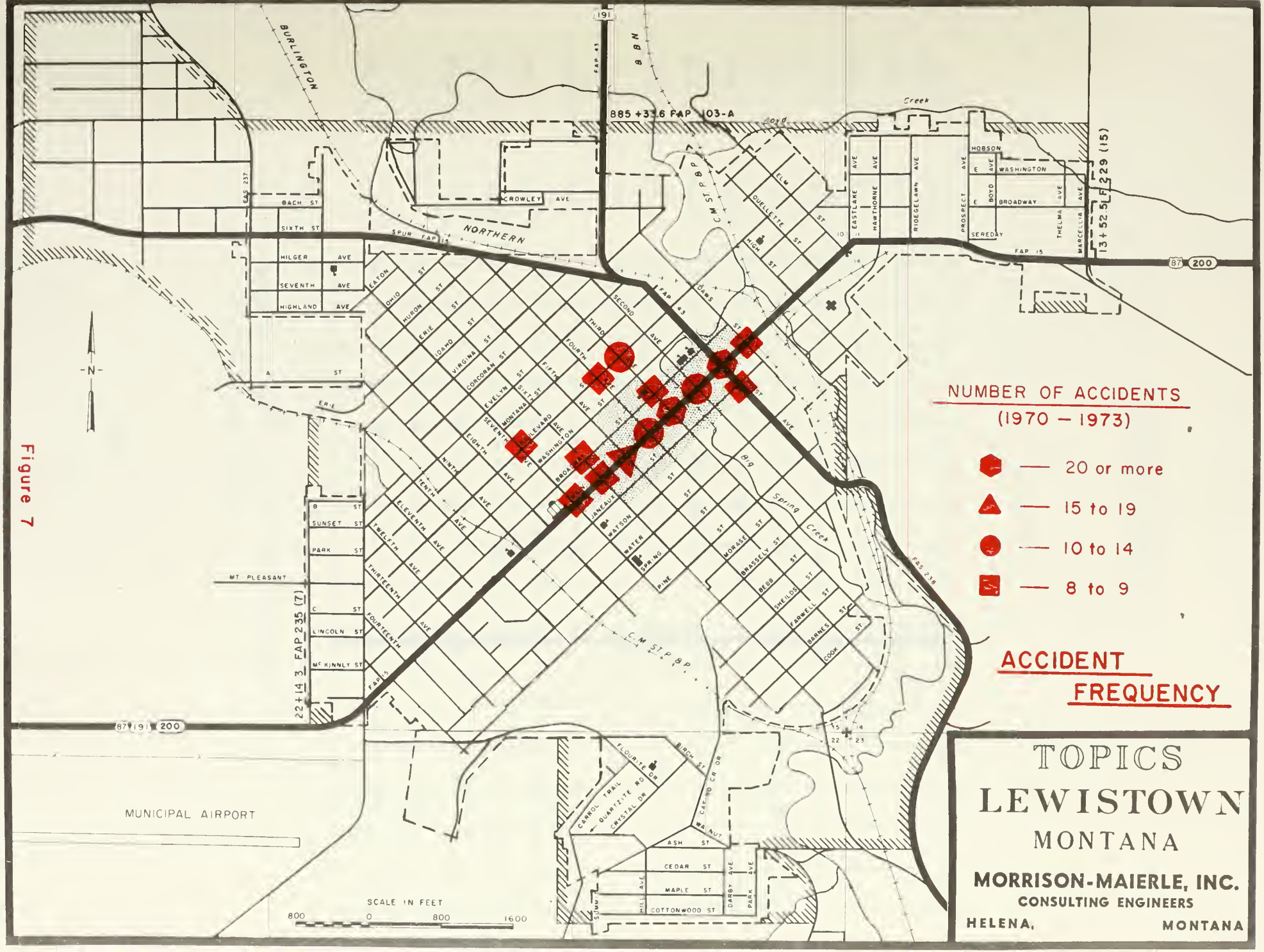
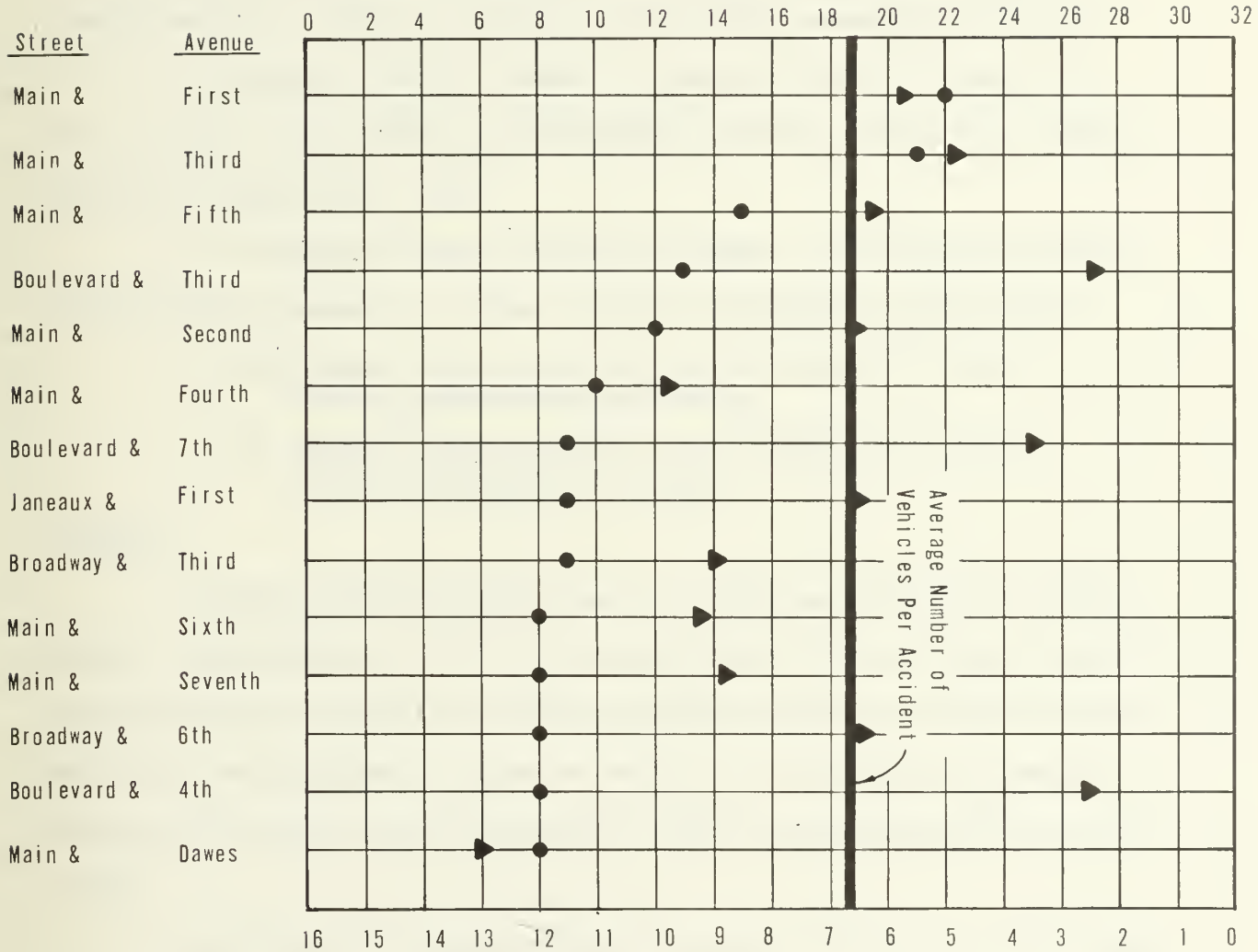

NUMBER OF ACCIDENTS
(1970 – 1973)
20 or more
15 to 19
10 to 14
8 to 9
ACCIDENT FREQUENCY
TOPICS
LEWISTOWN
MONTANA
MORRISON-MAIERLE, INC.
CONSULTING ENGINEERS
HELENA, MONTANA
885 +33.6 FAP 103-A
22+14.3 FAP 235 (7)
13+52.5 FAP 229 (15)
MUNICIPAL AIRPORT
SCALE IN FEET
800 0 800 1600
BURLINGTON NORTHERN
C M ST P & P
B & M
Big Spring Creek
Spring Creek
SECOND AVE
THIRD AVE
FOURTH AVE
FIFTH AVE
SIXTH AVE
SEVENTH AVE
EIGHTH AVE
NINTH AVE
TENTH AVE
ELEVENTH AVE
TWELFTH AVE
THIRTEENTH AVE
FOURTEENTH AVE
MT PLEASANT
HILGER AVE
HIGHLAND AVE
CROWLEY AVE
BACH ST
SIXTH ST
SUNSET ST
PARK ST
LINCOLN ST
McKINNLY ST
EATON ST
OHIO ST
HURON ST
ERIE ST
IDAHO ST
VIRGINIA ST
CORCORAN ST
EVELYN ST
MONTANA ST
WASHINGTON
JANEAUX
WATSON
WATER
SPRING
PINE
MORASE ST
BRASSELY ST
BEEB ST
SHIELDS ST
FARWELL ST
BARNES ST
COOK ST
ELM ST
OUELLETTE ST
HIGH ST
EASTLAKE AVE
HAWTHORNE AVE
RIOEGELAWN AVE
PROSPECT AVE
HOBSON
WASHINGTON
BOYD
BROADWAY
SEREDAY
THELMA AVE
MARCELLIA AVE
FLOURITE DR
CAMROL TRAIL
QUARTZITE RD
CRYSTAL DR
BIRCH ST
CASINO CR OR
WALNUT
ASH ST
CEDAR ST
MAPLE ST
COTTONWOOD ST
SUMMIT
HILL AVE
DARBY AVE
PARK AVE
FAS 237
FAS 238
FAP 15
FAP 87
FAP 200
FAP 191
FAP 43
SPUR FAP 15

Figure 7

ACCIDENT RATES

(●) Total number of accidents in three years


Street
Avenue
Main & First
Main & Third
Main & Fifth
Boulevard & Third
Main & Second
Main & Fourth
Boulevard & 7th
Janeaux & First
Broadway & Third
Main & Sixth
Main & Seventh
Broadway & 6th
Boulevard & 4th
Main & Dawes
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Average Number of Vehicles Per Accident

(▶) Number of vehicles passing through intersection per accident (in 100,000's)

TABLE 3

1. It is recommended that at signalized intersections "right turn on red" should be allowed only when signed, to conform to Montana Law.

2. Section 11-202(b) 1, 2 should be added which provides regulations pertaining to the steady yellow indication on traffic signals.

3. All signs should conform to the "Manual On Uniform Traffic Control Devices". (This is included in the TOPICS recommended projects.)

4. Section 11:605 (d) should be added pertaining to turning signals and their use in indicating the driver's intent to start from a parked position, change lanes or turn.

5. On entering through streets or highway, the following Lewistown Codes should be changed to conform with the corresponding Uniform Codes.

(a) Change Section 10-10-85 A to conform with 11-403(c). Vehicle approaching yield signs.

(b) Change Section 10-10-85 B to conform with 11-403(b) - Vehicle approaching stop sign.

PARKING:

A general parking inventory was not within the scope of this study. However, recommendations for certain parking restrictions were made when they affected safety or capacity and where they were related to a TOPICS project. Restricted parking zones are shown on several of the project plan maps to comply with Montana law and to provide a safer and more efficient traffic facility.

The only area in Lewistown which has angle parking is on Sixth Avenue between Main and Washington Streets. It is recommended that this angle parking be changed to parking which is parallel to the curb.

TRAFFIC ENGINEERING AND MAINTENANCE CAPABILITIES:

The City of Lewistown employs a staff which is responsible for maintaining the City's transportation network. A local electrical contractor is retained to maintain traffic control devices. This practice has been successful in the past and is expected to continue into the foreseeable future.

Montana Department of Highway forces maintain primary routes which are within the City.

IV

TOPICS IMPROVEMENT PROJECTS

SPRING STREET BETWEEN EIGHTH AND ELEVENTH AVENUES:

Problem

Spring Street is used mostly by vehicles and school buses going to and from the school and people going to and from work. In this section, there is parking allowed on both sides of the street, creating a serious capacity problem. This street is very narrow (24 to 34 feet). When cars are parked on both sides, there is insufficient width for two lanes of traffic.

Traffic and Safety

The ADT for this section is 990 vehicles, with a peak hour of 190 vehicles. The peak hour is from 12:00 noon to 1:00 P.M. with the heaviest traffic coming just after 12:00 noon and just before 1:00. There have been no serious accidents here, but the narrow street causes unnecessary delays.

Recommended Improvements

A temporary solution may be achieved by restricting parking to the north side of Spring Street only.

The recommended permanent solution is to widen Spring Street to 40 feet by eliminating the boulevard strip as shown on Figure 8.

Expected Results

Both solutions would allow for 2 directional flow of traffic, which will relieve the bottleneck. This will increase both the safety and capacity of this section and decrease travel time during peak hours.

Estimated Cost: $21,000

Priority: 1

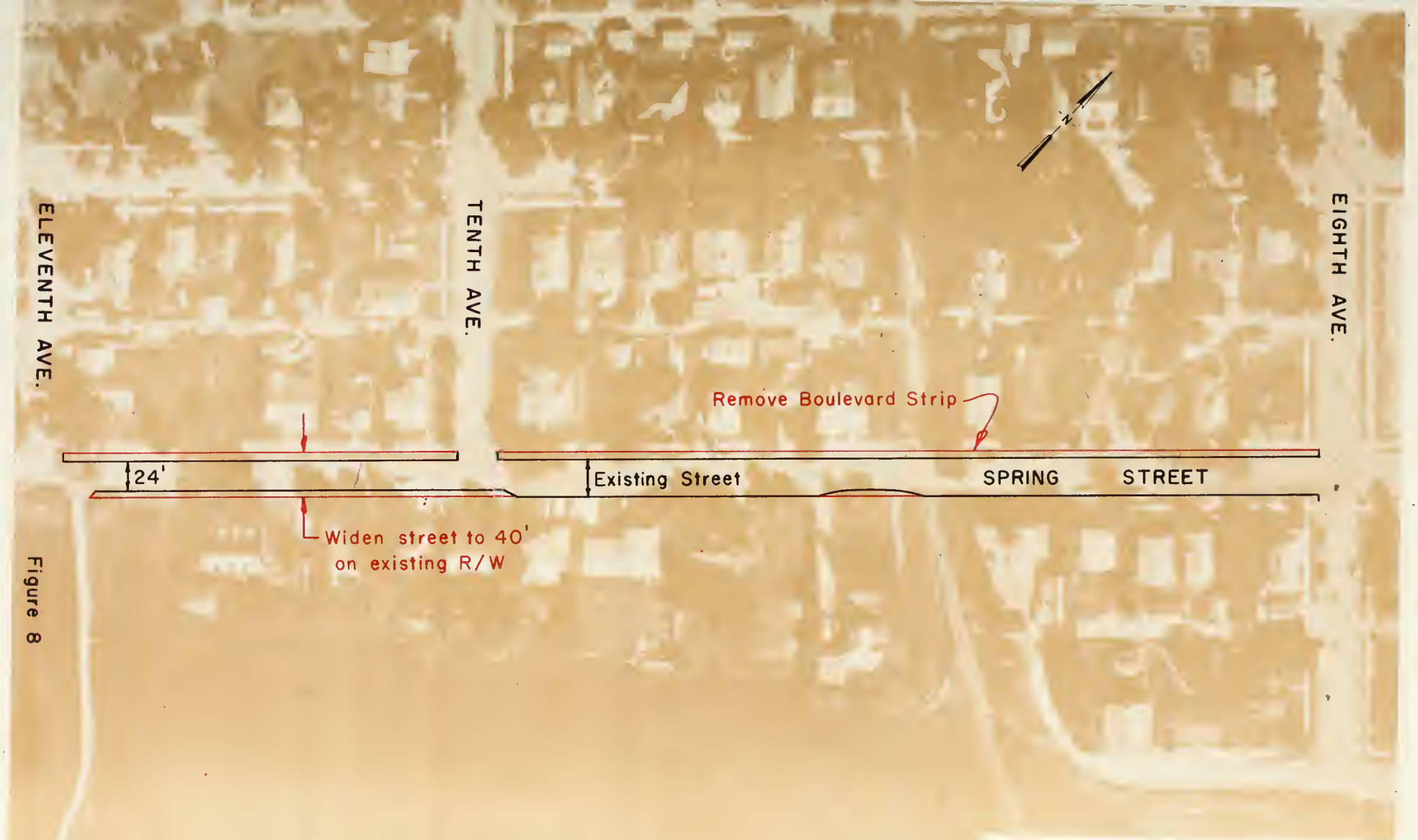


Figure 8

LEWISTOWN TOPICS STUDY

SPRING STREET

RECOMMENDED IMPROVEMENTS

MORRISON - MAIERLE INC.
HELENA MONTANA

INTERSECTION OF JANEAUX STREET AND FIRST AVENUE:

Problem

Due to high peak hour flows, excessive delays occur for drivers on Janeaux attempting to cross or turn onto First Avenue. This causes irritation and results in drivers trying to turn or cross when it is unsafe to do so.

Traffic and Safety

First Avenue has 4,000 ADT just northwest of this intersection and Janeaux has 2,700 ADT just southwest of First Avenue. The peak hour for these two streets is between 3:00 and 4:00 in the afternoon. First Avenue has 388 vehicles both directions in this hour and Janeaux Street has 271 vehicles both directions.

There have been 9 accidents at this intersection in the last 3 years. Seven of them are right angle type accidents and 2 of them are turning movement accidents. There are 640,000 vehicles through this intersection for one accident.

Suggested Improvements

Parking should be restricted for a 1/2 block section on the south side of Janeaux closest to First Avenue, and for the west 1/4 block of First just south of Janeaux. An east-bound right turn only lane should start at the middle of the block between First and Second Avenues on Janeaux. The middle lane will carry east bound traffic for the left turn and through traffic. On First Avenue, there will be 2 south bound lanes and one north bound lane. (See Figure 9.)

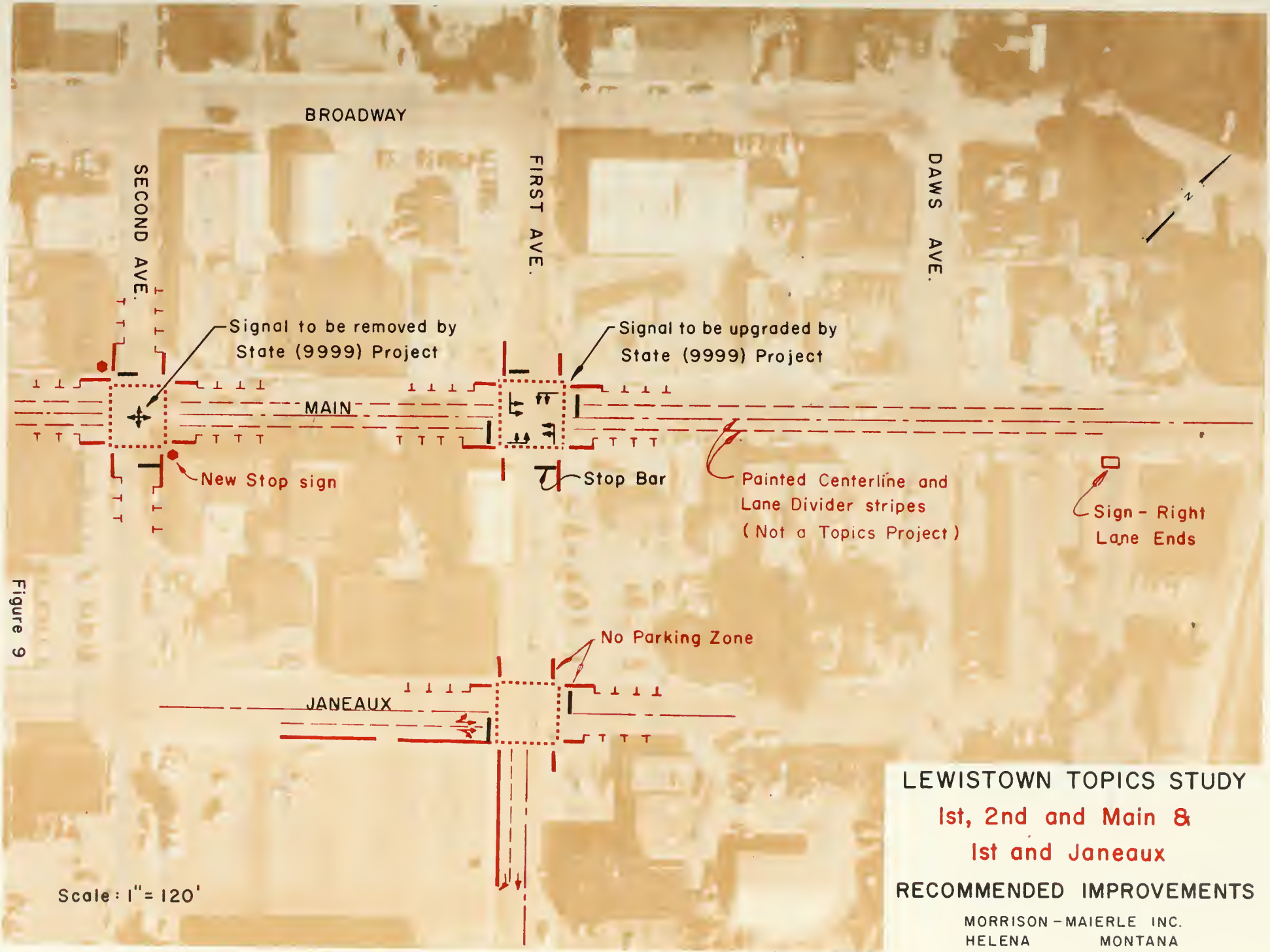


Figure 9

LEWISTOWN TOPICS STUDY

1st, 2nd and Main & 1st and Janeaux

RECOMMENDED IMPROVEMENTS

MORRISON-MAIERLE INC.
HELENA MONTANA

Expected Results

These improvements will increase the capacity of the east bound approach of Janeaux to First Avenue. The wait time at this stop sign will be decreased and safety will be increased.

Estimated Cost: $500

Priority: 2

INTERSECTION OF FIRST AVENUE SOUTH (FAS 238) AND BRASSEY STREET:

Problem

This intersection has over 8,000 square feet of open unmarked pavement. The signing is confusing and provides improper control of traffic moving into and through the intersection. This intersection is crossed by four separate sets of railroad tracks which also create a hazard. There is limited sight distance for south bound traffic on First Avenue where traffic turns to cross the railroad tracks and bridge. (See Figure 10) The grain elevator is located close to the left hand side of the road and blocks the driver's view of any trains approaching from that direction.

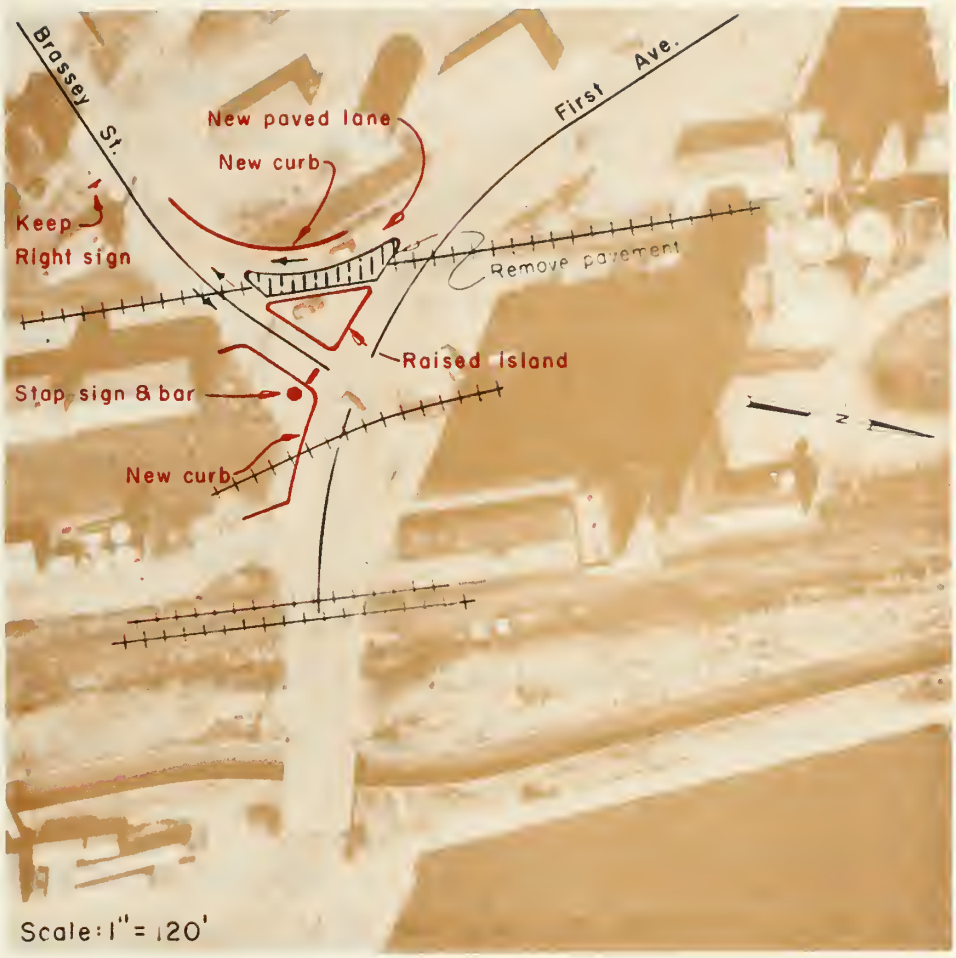
Traffic Volumes

First Avenue has an ADT of 2,900 vehicles just north of this intersection. Brassey Street carries 1,000 ADT just west of the intersection, and FAS 238 has 1,800 ADT to the south.

Recommended Improvements

Raised concrete median and curbs are to be constructed as shown on the drawing in Figure 10. New signs, stop bars, centerline stripes, and directional arrows should be placed as shown.

In addition to the improvements shown on Figure 10, it is recommended that a raised curb center divider be placed on Brassey Street to prevent wrong way movements into the right turn lane from First onto Brassey.



LEWISTOWN TOPICS STUDY

1st AVE. & BRASSEY ST.

RECOMMENDED IMPROVEMENTS

MORRISON - MAIERLE INC.
HELENA MONTANA

Figure 10

Expected Results

Channelization will reduce traffic conflicts and bring vehicles into the intersection at the proper angle to reduce the time it takes to turn across First Avenue. This will increase safety and driver confidence in negotiating the intersection.

Estimated Cost: $2,700

Priority: 4

BROADWAY AND SIXTH AVENUE:

Problem

Parking is allowed too close to the intersection, which restricts sight distance. This forces right turn movements to encroach on the centerline.

Recommended Solution

On the approach side of Sixth Street, parking shall be restricted within 30' of the crosswalks and 20 feet on the departure lanes. Parking should be restricted within 20 feet of the crosswalk on Broadway. (See Figure 11.)

Expected Results

Better sight distance and more room in the intersection to make turning movement, which will increase safety as well as capacity.

Estimated Cost: $300

Priority: 5

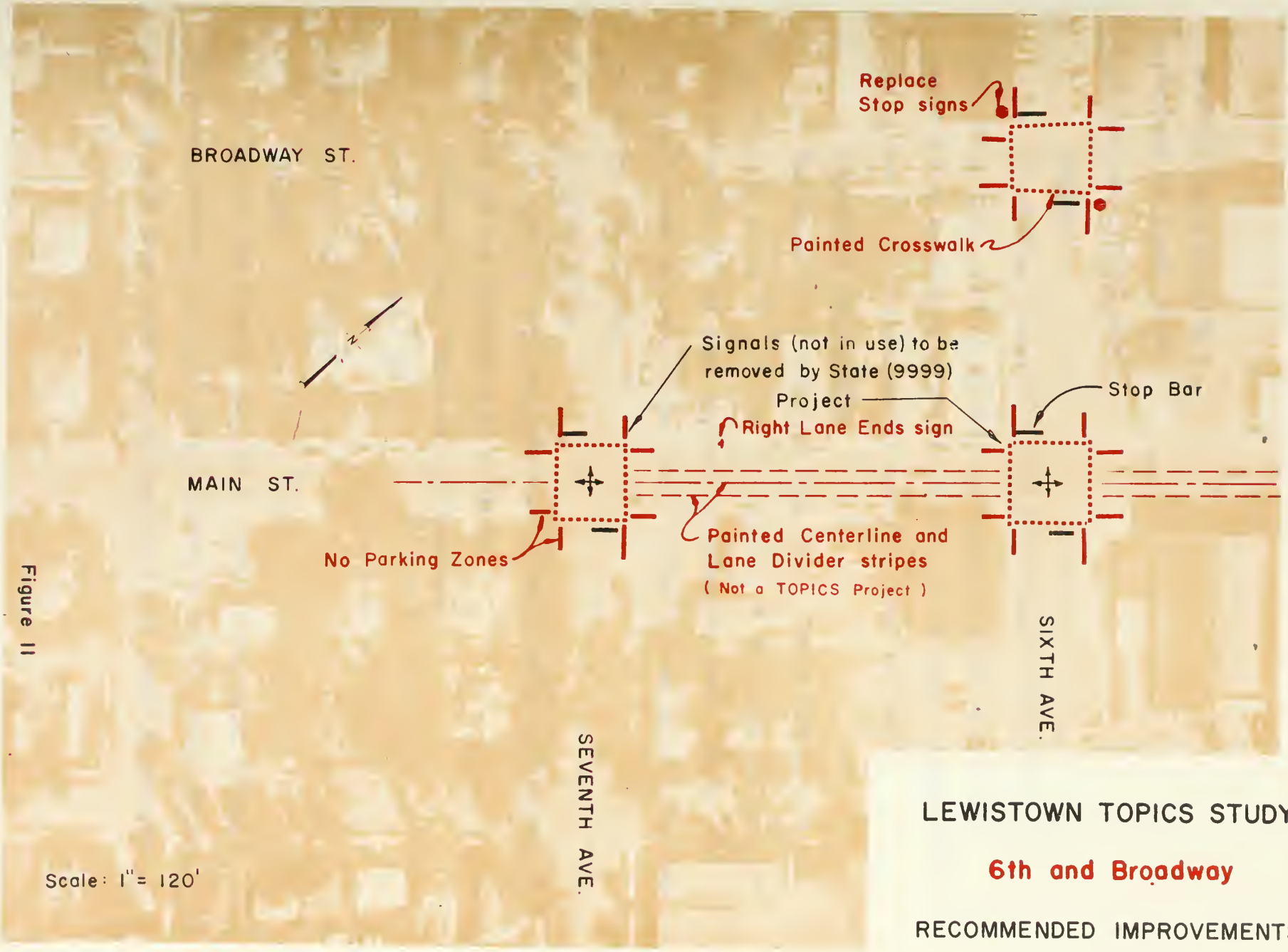


Figure 11

LEWISTOWN TOPICS STUDY

6th and Broadway

RECOMMENDED IMPROVEMENTS

MORRISON - MAIERLE INC.
HELENA MONTANA

BOULEVARD AND THIRD AVENUE:

BOULEVARD AND FOURTH AVENUE:

BOULEVARD AND SEVENTH AVENUE:

Problem

All of these intersections have had at least 6 angle accidents in the last 3 years. Part of the cause for these accidents is poor sight distance from the Avenues of oncoming traffic on Boulevard. Another problem is that the yield signs are not providing effective control.

Recommended Improvements

Replace the yield signs with stop signs. Remove parking by painting the curbs yellow for 30' from the crosswalk on the controlled approach side and 20' on all the other approach and departure lanes. (Note: The City should keep the trees trimmed near the intersections to keep them from restricting sight distance.)

Expected Results

The number of angle accidents will be decreased by the erection of stop signs and the increased sight distance.

Estimated Cost: $260 each, for $800 Total

Priorities: 6, 7 and 8

TYPE II SYSTEM SIGN UPDATE:

Problem

Many of the signs on the Type II system are mutilated, worn out, or do not conform to the "1971 Manual on Uniform Traffic Control Devices." In order to bring these signs into conformation, a sign inventory was made.

Recommended Improvements

The signs that need replacing are listed on Table 4.

Expected Results

The expected results will be to increase safety through conformity with the signing prescribed in the 1971 Manual.

Estimated Cost: $2,400

Priority: 9

INTERSECTION OF MAIN STREET AND FIFTH AVENUE:

Problem

Fifth Street south is a minor arterial. It serves as the major street for traffic from the south end of Lewistown. The signal at Main Street is substandard. It has only one signal face per approach and is not coordinated with the other signals on Main Street. This interrupts the flow of traffic on Main Street and offers no platooning of traffic for the non-signalized intersections. This signal decreases the capacity of the whole section of Main Street.

Traffic, Safety and Capacity

There were 15 accidents at this intersection in the last 3 years. Of these accidents, 5 were turning type, 4 were rearend type and 2 each were of the angle and pedestrian type.

The DV/SVc ratios for this intersection are all less than or equal to .40 (see the DV/SVc chart, Table 2). The volume of traffic on Main Street here is over 5,000 vehicles per day. On Fifth Avenue, there are 1,800 vehicles per day both directions North of Main and about 3,000 ADT both directions South of Main.

TRAFFIC SIGNS - UPDATE		
Location	Problem	Improvements
Seventh Avenue and Spur US 87	Two stop signs on one pole for different streets	Set one new post - Place each Stop sign on separate post.
Seventh Avenue and Highland	Obsolete Dip sign	Install new Dip sign.
On Seventh just north of Hilger and just south of Highland	Obsolete School signs	Install 2 new Crosswalk and 2 new School advance signs.
At Seventh and Boulevard	Obsolete yield signs	2 new Yield signs
At Seventh and Broadway	Obsolete Yield signs	2 new Yield signs
On Seventh between Main and Janeaux	Obsolete School Crossing signs	1 new Crosswalk sign 1 new School Crossing sign
On Spring between Fifth and Sixth and between Seventh and Eighth	Obsolete School signs	2 new Crosswalk signs 2 new School Advance signs
Both sides of Boulevard on Second, Fifth, Eighth and Ninth Streets	Obsolete Yield signs	8 new Yield signs
On Washington & Broadway between Third and Fourth	Obsolete School signs	2 new School Advance signs 2 new School Crossing signs
On Boulevard just east of High and just west of Ouellette	Obsolete School signs	2 new School Advance signs 2 new School Crossing signs
On Fifth just north of Cook	Obsolete Speed Limit 15 MPH Sign	1 new 15 MPH Speed Limit sign
On Fifth just south of Cook	Obsolete Speed Limit sign	1 new 15 MPH Speed Limit sign
On Airport Road just north of Flourite Drive	Obsolete School Crossing sign	1 new School Crossing ahead sign 1 new School Crossing sign

TABLE 4

Warrants for this signal are met using accident experience, and the combination warrant. A combination of warrants 1 and 2, the minimum volume warrant, and the interruption of continuous traffic warrant are met for 8 hours during the average weekday. As Fifth Street is a minor arterial and as there are no other signals further west on Main Street, a traffic light should be installed here.

Recommended Improvements

Upgrade the present light installation to conform to the "1971 Manual on Uniform Traffic Control Devices" standards, with two signal faces per approach. This signal should be synchronized with the other lights that are being installed by the Montana Department of Highways. At times, this intersection carries heavy pedestrian traffic, with 2 pedestrian accidents in the last three years. Pedestrian Walk/Don't Walk lights should be installed. Parking should not be allowed within 30 ft. of the approach to this intersection and 20' on all departure lanes. Stop bars should be placed at the crosswalks. (See Figure 12.)

Expected Results

This facility will improve the flow of traffic on Main Street and keep the drivers on Fifth Avenue from excessively long waits at Main. The removal of parking will increase sight distance and improve safety. The signal will also help keep Fifth Avenue as the major access to the south part of town.

Estimated Cost: $15,600

Priority: 3

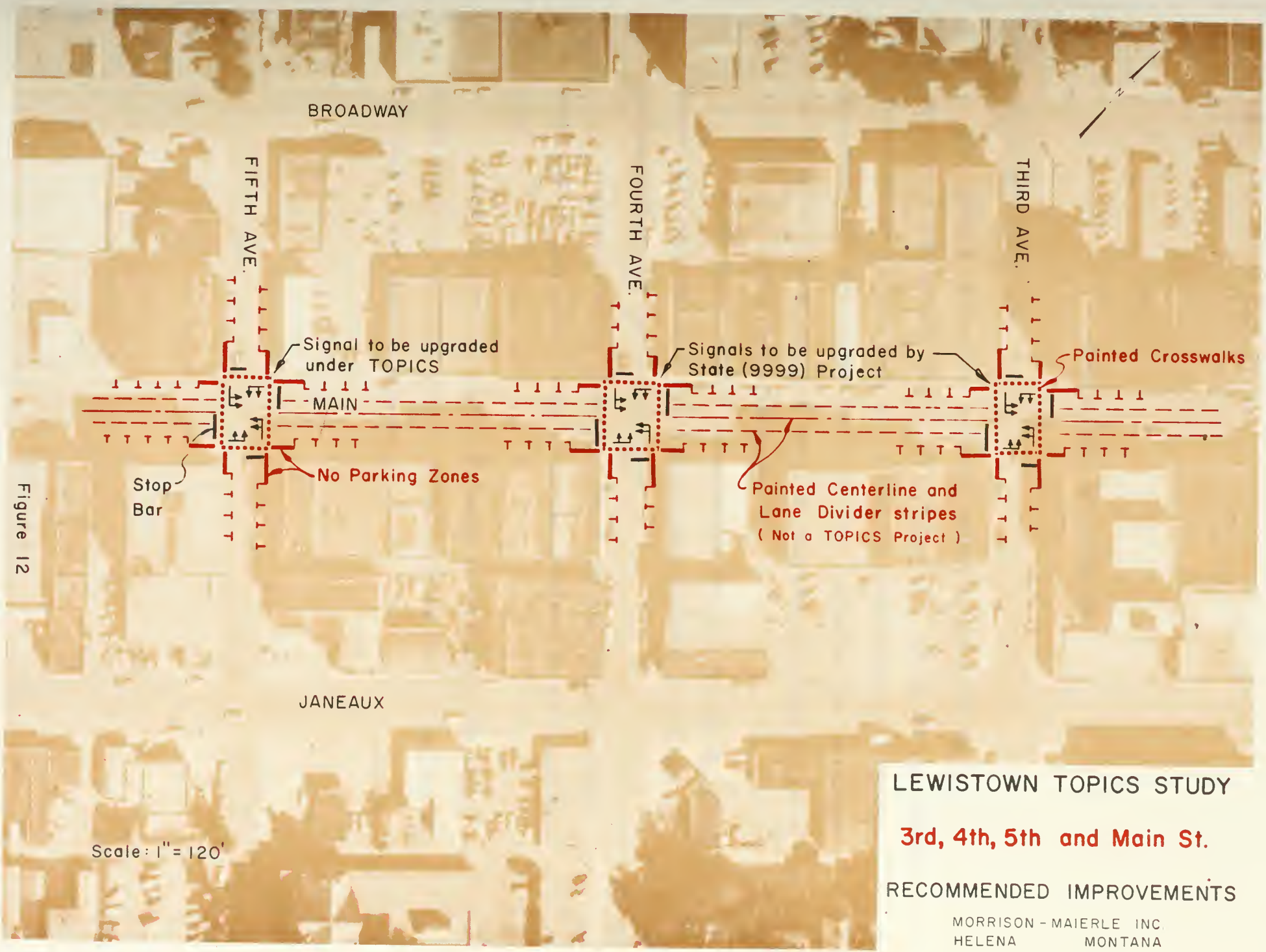

BROADWAY
FIFTH AVE.
FOURTH AVE.
THIRD AVE.
MAIN
Signal to be upgraded under TOPICS
Signals to be upgraded by State (9999) Project
Painted Crosswalks
No Parking Zones
Stop Bar
Painted Centerline and Lane Divider stripes
(Not a TOPICS Project)
JANEAUX
Scale: 1" = 120'
LEWISTOWN TOPICS STUDY
3rd, 4th, 5th and Main St.
RECOMMENDED IMPROVEMENTS
MORRISON - MAIERLE INC
HELENA MONTANA

Figure 12

V

SURVEILLANCE AND EVALUATION

RECOMMENDED PROCEDURES:

Standard surveillance practices already in use by the Montana Department of Highways and the City of Lewistown will provide the data needed for evaluation and will serve to indicate the effectiveness of TOPICS improvements which are put into operation. The evaluation form reproduced in the appendix would provide a method of recording and evaluating the effectiveness of each TOPICS improvement.

The MDH regular traffic count program should be revised to include needed additional counts at TOPICS improvement locations on the Type II system which are not now in the program.

Lewistown's Police Department should continue to keep accident records at all improvement locations as they presently do throughout the City.

These measures will provide the means for evaluating the overall effectiveness of the TOPICS program and will provide the data required for the annual TOPICS report to Congress.

VI

APPENDIX

EXCERPTS FROM MINUTES OF MEETING OF THE CITY COUNCIL OF THE CITY OF LEWISTOWN HELD SETPEMBER 17, 1973.

MINUTES OF A REGULAR MEETING OF THE
CITY COUNCIL OF THE CITY OF LEWISTOWN,
MONTANA HELD IN THE COUNCIL CHAMBERS
ON MONDAY, OCTOBER 1, 1973 AT 8:00 P. M.

Present: Mayor Dissly
Alderemen: Hunter, Deal, Green, Lindstrand, Pegg, Heckford

The meeting was called to order by Mayor Dissly; minutes of the last regular meeting were approved as written with the correction made on Page 130 concerning the Federal Aid Primary II system as follows:

"Mayor Dissly read a letter from Morrison-Maierle, Inc., Consulting Engineers, along with excerpts of minutes of a meeting of City Commission of the City of Bozeman on a similar project together with a certificate by that City's Clerk to show how to set up this project for Lewistown. He then distributed maps of the City of Lewistown prepared by Morrison-Maierle, Inc. deliniating Lewistown's proposed Federal Aid Primary II system agreed on by the City Engineer, Superintendent of City Operations, and the Mayor on August 30, 1973 in the City Engineer's office. The Mayor further asked the Council to study this map and pass a motion making this the official system for the City of Lewistown. He then named the streets in the proposed system as follows:

Fourteenth Avenue from Spring Street to Main Street, Spring Street from 14th Avenue to Fifth Avenue, Fifth Avenue from Washington Street to Cook Street, Cook Street from Fifth Avenue to Sixth Avenue, Sixth Avemue S. from Cook Street to the Pump House by Foster Apiaries, and back to Walnut Street, Walnut Street to Casino Creek Drive and thence on Casino Creek Drive S. W. to the City limites. Brassey Street from Fifth Avenue South to 1st Avenue South, Elm Street from Main Street to Boulevard Street, Boulevard from Elm to Entrance Avenue, Entrance Avenue from Boulevard St. to Main St., Seventh Avenue from the Truck By-Pass to Spring Street, Fourth Avenue from the Truck By-Pass to Janeaux, and the down town area cross hatched as shown on the map with 2nd, 3rd, 4th, 5th and 6th running from Washington to Janeaux and Dawes from Broadway to Janeaux. Alderman Deal moved that the map be accepted as the base map delineating Federal Aid Primary I and II, seconded by Alderman Pegg. Motion unanimously carried."

C E R T I F I C A T E

State of Montana)
County of Fergus)
City of Lewistown)

I, Dorothea M. Abel, duly appointed, qualified City Clerk of the City of Lewistown, Montana, and as such City Clerk do hereby certify that the foregoing are exerpts from the minutes of the City Council held September 17, 1973 and that they are full and correct.

IN WITNESS WHEREOF, I hereunto set my hand and affix the corporate seal of the City of Lewistown this 2nd day of October 1973.

Dorothea M. Abel

DOROTHEA M. ABEL, CITY CLERK

MONTANA HIGHWAY COMMISSION

TRAFFIC DEPARTMENT

ACCIDENT ANALYSIS

COLLISION DIAGRAM

CITY OF Lewistown COUNTY Fergus

INTERSECTION OF - AND

HIGHWAY NUMBER

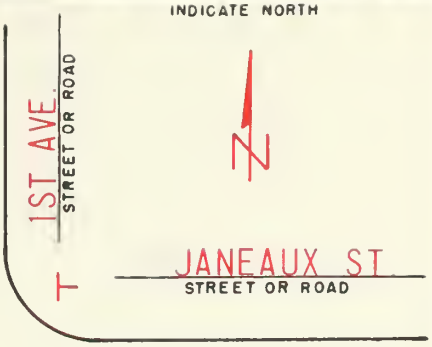
PERIOD COVERED 6-70 6-73

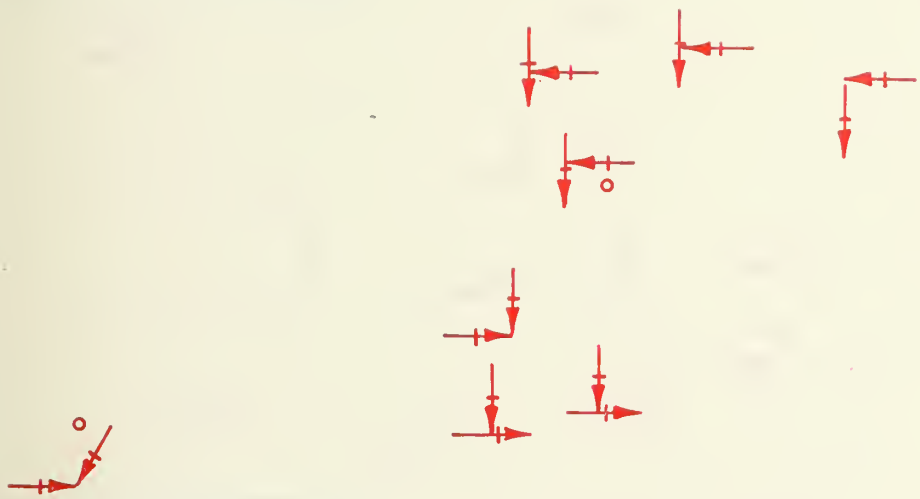
COMPILED BY DRAWN BY DATE

LEGEND

- PASSENGER KILLED
- PEDESTRIAN KILLED
- PASSENGER INJURED
- PEDESTRIAN INJURED
- PROPERTY DAMAGE ONLY
- COLLISION - REAR - END
- COLLISION - HEAD - ON
- COLLISION - SIDESWIPE

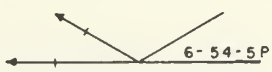
INDICATE NORTH





- PATH OF PEDESTRIAN
- PATH OF VEHICLE
- PATH OF ANIMAL
- VEHICLE MOVING
- VEHICLE STOPPED
- VEHICLE BACKING
- PROPERLY PARKED
- IMPROPERLY PARKED
- VEHICLE OVERTURNED
- VEHICLE SKIDDED

EXAMPLE



COLLISION - SIDESWIPE
JUNE, 1954 - 5-6 PM
PROPERTY DAMAGE

NOTE LOCATION OF ANY TRAFFIC CONTROLS AT INTERSECTION BY THE FOLLOWING SYMBOLS

- STOP SIGN
- TWO WAY TRAFFIC SIGNAL
- FOUR WAY TRAFFIC SIGNAL

COLLISION TYPE	TOTAL			
	FATAL	INJURY	PROP DAMAGE	TOTAL
ANGLE		1	6	7
HEAD - ON				
REAR - END				
SIDESWIPE				
TURNING MOVEMENT		1	1	2
PARKING				
NON - COLLISION				
FIXED OBJECT				
PEDESTRIAN				
BACKING				
MISC.				
TOTAL		2	7	9

REMARKS

MONTANA HIGHWAY COMMISSION

TRAFFIC DEPARTMENT

ACCIDENT ANALYSIS

COLLISION DIAGRAM

CITY OF Lewistown COUNTY Fergus

INTERSECTION OF _____ AND _____

HIGHWAY NUMBER _____ _____

PERIOD COVERED 6-70 6-73

COMPILED BY _____ DRAWN BY _____ DATE _____

LEGEND

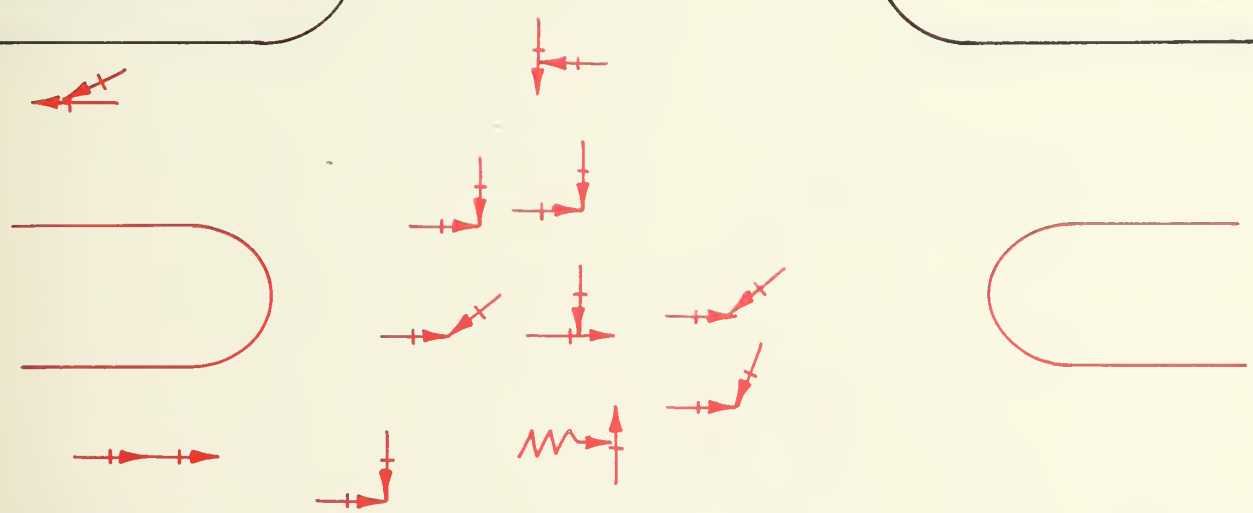
- PASSENGER KILLED
- PEDESTRIAN KILLED
- PASSENGER INJURED
- PEDESTRIAN INJURED
- PROPERTY DAMAGE ONLY
- COLLISION - REAR - END
- COLLISION - HEAD - ON
- COLLISION - SIDESWIPE

Yield

INDICATE NORTH

3RD AVE. N.
STREET OR ROAD

BOULEVARD ST.
STREET OR ROAD



- PATH OF PEDESTRIAN
- PATH OF VEHICLE
- PATH OF ANIMAL
- VEHICLE MOVING
- VEHICLE STOPPED
- VEHICLE BACKING
- PROPERLY PARKED
- IMPROPERLY PARKED
- VEHICLE OVERTURNED
- VEHICLE SKIDDED

EXAMPLE

Yield

6-54-5P

COLLISION - SIDESWIPE
JUNE, 1954 - 5-6 PM
PROPERTY DAMAGE

NOTE LOCATION OF ANY TRAFFIC CONTROLS AT INTERSECTION BY THE FOLLOWING SYMBOLS

- STOP SIGN
- TWO WAY TRAFFIC SIGNAL
- FOUR WAY TRAFFIC SIGNAL

COLLISION TYPE	TOTAL			
	FATAL	INJURY	PROP DAMAGE	TOTAL
ANGLE			6	6
HEAD - ON				
REAR - END			1	1
SIDESWIPE			2	2
TURNING MOVEMENT			4	4
PARKING				
NON - COLLISION				
FIXED OBJECT				
PEDESTRIAN				
BACKING				
MISC.				
TOTAL			13	13

REMARKS _____

MONTANA HIGHWAY COMMISSION

TRAFFIC DEPARTMENT

ACCIDENT ANALYSIS

COLLISION DIAGRAM

CITY OF Lewistown COUNTY Fergus

INTERSECTION OF • AND

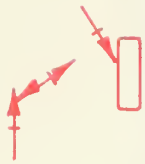
HIGHWAY NUMBER

PERIOD COVERED 6-70 6-73

COMPILED BY DRAWN BY DATE

LEGEND

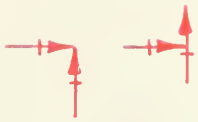
- PASSENGER KILLED
- PEDESTRIAN KILLED
- PASSENGER INJURED
- PEDESTRIAN INJURED
- PROPERTY DAMAGE ONLY
- COLLISION - REAR - END
- COLLISION - HEAD - ON
- COLLISION - SIDESWIPE



6TH AVE
STREET OR ROAD

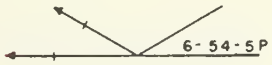
INDICATE NORTH

BROADWAY ST.
STREET OR ROAD



- PATH OF PEDESTRIAN
- PATH OF VEHICLE
- PATH OF ANIMAL
- VEHICLE MOVING
- VEHICLE STOPPED
- VEHICLE BACKING
- PROPERLY PARKED
- IMPROPERLY PARKED
- VEHICLE OVERTURNED
- VEHICLE SKIDDED

EXAMPLE



COLLISION - SIDESWIPE
JUNE, 1954 - 5 - 6 PM
PROPERTY DAMAGE

NOTE LOCATION OF ANY TRAFFIC CONTROLS AT INTERSECTION BY THE FOLLOWING SYMBOLS

- STOP SIGN
- TWO WAY TRAFFIC SIGNAL
- FOUR WAY TRAFFIC SIGNAL

COLLISION TYPE	TOTAL			
	FATAL	INJURY	PROP DAMAGE	TOTAL
ANGLE			2	2
HEAD - ON				
REAR - END			1	1
SIDESWIPE			3	3
TURNING MOVEMENT			1	1
PARKING				
NON - COLLISION				
FIXED OBJECT				
PEDESTRIAN				
BACKING			1	1
MISC.				
TOTAL			8	8

REMARKS

MONTANA HIGHWAY COMMISSION

TRAFFIC DEPARTMENT

ACCIDENT ANALYSIS

COLLISION DIAGRAM

CITY OF Lewistown COUNTY Fergus

INTERSECTION OF - AND

HIGHWAY NUMBER

PERIOD COVERED 6-70 6-73

COMPILED BY DRAWN BY DATE

LEGEND

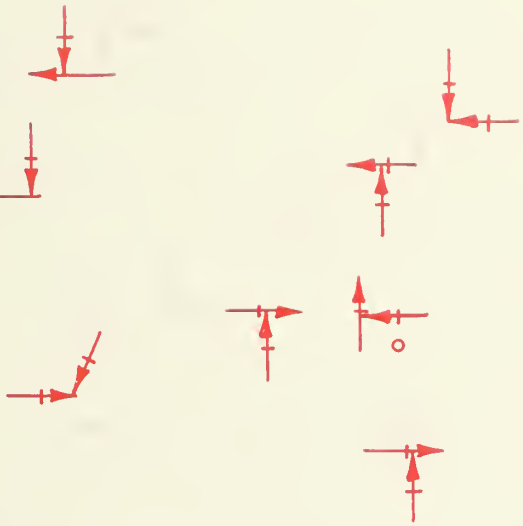
- PASSENGER KILLED
- PEDESTRIAN KILLED
- PASSENGER INJURED
- PEDESTRIAN INJURED
- PROPERTY DAMAGE ONLY
- COLLISION - REAR - END
- COLLISION - HEAD - ON
- COLLISION - SIDESWIPE

Yield

INDICATE NORTH

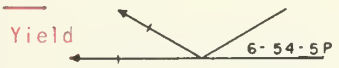
4TH AVE. STREET OR ROAD

BOULEVARD ST. STREET OR ROAD



- PATH OF PEDESTRIAN
- PATH OF VEHICLE
- PATH OF ANIMAL
- VEHICLE MOVING
- VEHICLE STOPPED
- VEHICLE BACKING
- PROPERLY PARKED
- IMPROPERLY PARKED
- VEHICLE OVERTURNED
- VEHICLE SKIDDED

EXAMPLE



COLLISION - SIDESWIPE
JUNE, 1954 - 5-6 PM
PROPERTY DAMAGE

NOTE LOCATION OF ANY TRAFFIC CONTROLS AT INTERSECTION BY THE FOLLOWING SYMBOLS

- STOP SIGN
- TWO WAY TRAFFIC SIGNAL
- FOUR WAY TRAFFIC SIGNAL

COLLISION TYPE	TOTAL			
	FATAL	INJURY	PROP DAMAGE	TOTAL
ANGLE		1	6	7
HEAD - ON				
REAR - END				
SIDESWIPE				
TURNING MOVEMENT			1	1
PARKING				
NON - COLLISION				
FIXED OBJECT				
PEDESTRIAN				
BACKING				
MISC.				
TOTAL		1	7	8

REMARKS

MONTANA HIGHWAY COMMISSION

TRAFFIC DEPARTMENT

ACCIDENT ANALYSIS

COLLISION DIAGRAM

CITY OF Lewistown COUNTY Fergus

INTERSECTION OF _____ AND _____

HIGHWAY NUMBER _____ _____

PERIOD COVERED 6-70 6-73

COMPILED BY _____ DRAWN BY _____ DATE _____

LEGEND

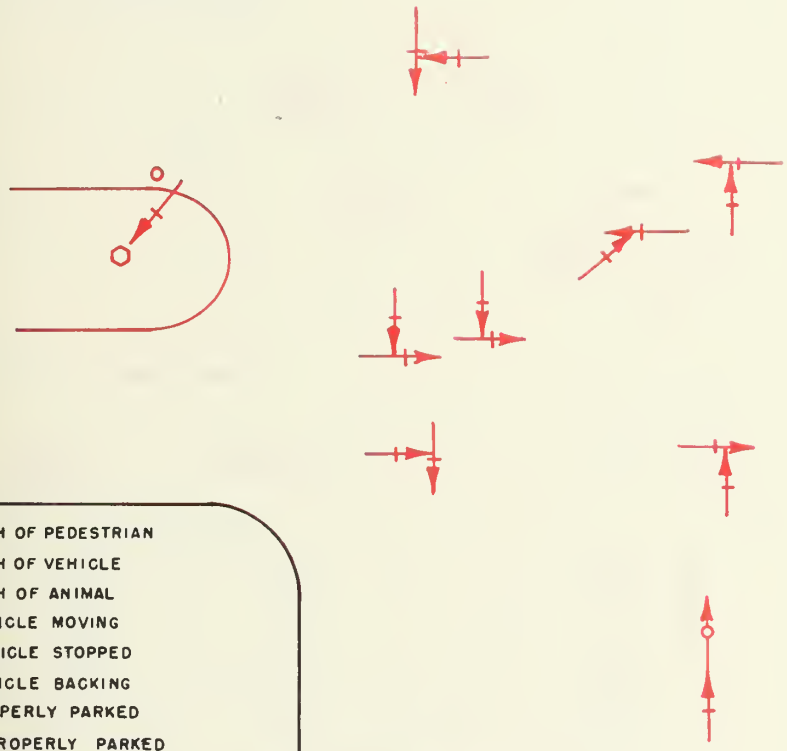
- PASSENGER KILLED
- PEDESTRIAN KILLED
- PASSENGER INJURED
- PEDESTRIAN INJURED
- PROPERTY DAMAGE ONLY
- COLLISION - REAR - END
- COLLISION - HEAD - ON
- COLLISION - SIDESWIPE

Yield

INDICATE NORTH

7TH AVE. STREET OR ROAD

BOULEVARD ST. STREET OR ROAD



- PATH OF PEDESTRIAN
- PATH OF VEHICLE
- PATH OF ANIMAL
- VEHICLE MOVING
- VEHICLE STOPPED
- VEHICLE BACKING
- PROPERLY PARKED
- IMPROPERLY PARKED
- VEHICLE OVERTURNED
- VEHICLE SKIDDED

EXAMPLE

Yield 6-54-5P

COLLISION - SIDESWIPE
JUNE, 1954 - 5-6 PM
PROPERTY DAMAGE

NOTE LOCATION OF ANY TRAFFIC CONTROLS AT INTERSECTION BY THE FOLLOWING SYMBOLS

- STOP SIGN
- TWO WAY TRAFFIC SIGNAL
- FOUR WAY TRAFFIC SIGNAL

COLLISION TYPE	TOTAL			
	FATAL	INJURY	PROP DAMAGE	TOTAL
ANGLE			5	5
HEAD - ON				
REAR - END			1	1
SIDESWIPE				
TURNING MOVEMENT			1	1
PARKING				
NON - COLLISION				
FIXED OBJECT		1		1
PEDESTRIAN				
BACKING				
MISC.				
TOTAL		1	8	9

REMARKS _____

MONTANA HIGHWAY COMMISSION

TRAFFIC DEPARTMENT
ACCIDENT ANALYSIS

COLLISION DIAGRAM

CITY OF Lewistown COUNTY Fergus

INTERSECTION OF _____ AND _____

HIGHWAY NUMBER _____ _____

PERIOD COVERED 6-70 6-73

COMPILED BY _____ DRAWN BY _____ DATE _____

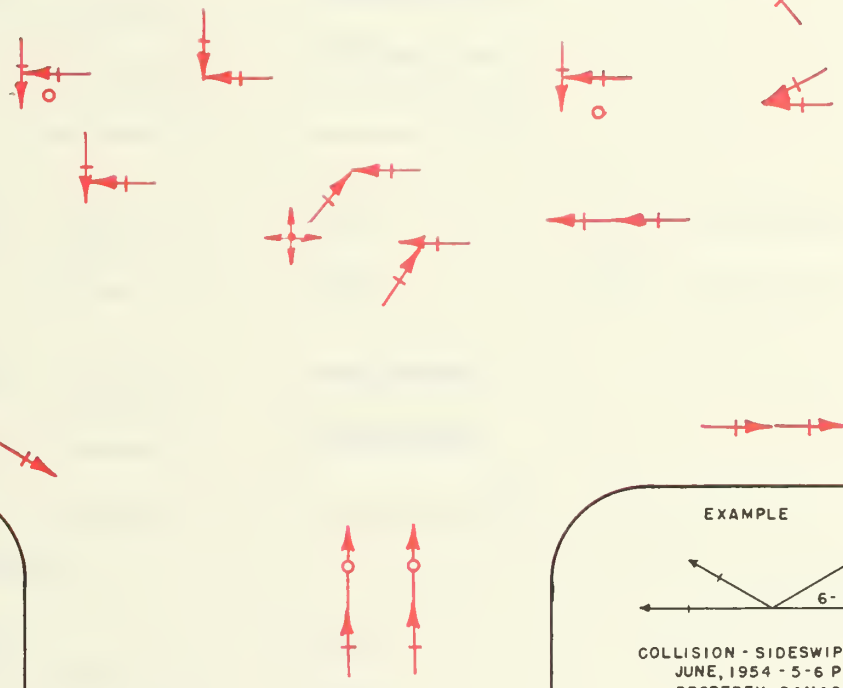
LEGEND

- PASSENGER KILLED
- PEDESTRIAN KILLED
- PASSENGER INJURED
- PEDESTRIAN INJURED
- PROPERTY DAMAGE ONLY
- COLLISION - REAR - END
- COLLISION - HEAD - ON
- COLLISION - SIDESWIPE

INDICATE NORTH

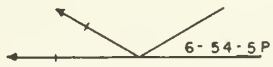
5TH AVE. STREET OR ROAD

MAIN ST. STREET OR ROAD



- PATH OF PEDESTRIAN
- PATH OF VEHICLE
- PATH OF ANIMAL
- VEHICLE MOVING
- VEHICLE STOPPED
- VEHICLE BACKING
- PROPERLY PARKED
- IMPROPERLY PARKED
- VEHICLE OVERTURNED
- VEHICLE SKIDDED

EXAMPLE



COLLISION - SIDESWIPE
JUNE, 1954 - 5-6 PM
PROPERTY DAMAGE

NOTE LOCATION OF ANY TRAFFIC CONTROLS AT INTERSECTION BY THE FOLLOWING SYMBOLS

- STOP SIGN
- TWO WAY TRAFFIC SIGNAL
- FOUR WAY TRAFFIC SIGNAL

COLLISION TYPE	TOTAL			
	FATAL	INJURY	PROP DAMAGE	TOTAL
ANGLE		2	2	4
HEAD - ON				
REAR - END			5	5
SIDESWIPE				
TURNING MOVEMENT			5	5
PARKING				
NON - COLLISION				
FIXED OBJECT			1	1
PEDESTRIAN				
BACKING				
MISC.				
TOTAL		2	13	15

REMARKS _____

TOPICS PROGRAM
EVALUTION PROCEDURES FOR
EFFECTIVENESS OF IMPROVEMENTS

Location _____

Analysis Area (Intersection/Section & Length) _____

_____ Length _____

Type of Improvement _____

_____

Effective Date of Improvement _____

Traffic

1970 _____ ADT/Peak Hour

19 _____ ADT/Peak Hour

Change _____ = _____%

Capacity

1970 _____ VPH L.S. = _____

19 _____ VPH L.S. = _____

Accidents

1970 _____ Rate/Number

19 _____ Rate/Number

Change _____ = _____%

Annual Savings thru Change ..... $ _____

Travel Speed

1970 _____ MPH

19 _____ MPH

Change _____ = _____%

Annual Savings thru Change ..... $ _____

AVERAGE ANNUAL MOTORIST SAVINGS
SINCE IMPLEMENTATION OF IMPROVEMENT ..... $ _____

REMARKS: _____

_____

_____

EVALUATION FORM